Local Work Instruction:
Noble Discover: Deck Drainage Discharge – D002

Approved By:
Scope:
Issue Date:
Revision level:

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Revision/Review Date:
Next Review Date:

SCOPE:

This document offers work level instructions for the sampling, testing, and reporting associated with the discharge of deck drainage while operating under the guidelines of the NPDES GP AKG-28-8100, on-board the *Noble Discoverer*. The deck drainage system is designed to capture spills, leaks, wash water, seawater, drillings fluids and rain water. The current design and management system on the Noble Discoverer has the ability to process all deck drainage through a multi-phase clarifier (MPC) prior to discharging overboard. As fluid accumulates on all decks other than the rig floor and forward catwalk, it flows through various drains and into storage tanks. The fluid can then be processed or discharged directly overboard if required testing meets permit requirements. All fluid from the rig floor and forward catwalk drain to a single collection site and is measured for oil content. If fluid is >15ppm, the drainage will be processed through an Oil/Water Separator (OWS). If rig floor fluid is <15ppm, it will be discharged overboard after the M-I SWACO NPDES Compliance Specialist has collected and sampled the effluent as outlined in the QAPP.

The helicopter deck is designed with the deck itself being a containment vessel capable of holding the full fuel capacity of a Sikorsky - 92N or equivalent helicopter. Drainage from the deck can be either directed to holding tanks on the accommodation roof in the case of a fuel spill, or directed via piping on port and starboard down to the poop deck and discharge onto the walkway in the case of rainfall (where is it included with other deck drainage, as above). The operation of the valve for directing the flow is done remotely from the activation station on the helicopter deck forward access platform.

Other fluids or chemicals which may in part or completely enter deck drains during operations include: ice-melt mixture, BOP fluid, fire control system test water and boiler blowdown. These fluids will be considered deck drainage and will be handled as part of this LWI.

RESPONSIBILITY:

The M-I SWACO NPDES Compliance Specialist is responsible to ensure that this LWI has been provided to each person prior to conducting this task. Any personnel that may perform the tasks outlined in this document must be familiar with the process, before the rig begins operating under NPDES regulations. Prior to drilling, the M-I SWACO NPDES Compliance Specialist will perform a pre-operational inspection and weekly inspections during drilling. Visual inspections of deck drainage areas are to verify proper operation and to document any signs of pipe leaks or spills. M-I SWACO NPDES Compliance Specialist will record deck drainage per discharge and inspection observations.

During discharge event occurrence, the M-I SWACO NPDES Compliance Specialist is responsible for performing the following tasks:

- Document the estimated volume discharged.
- Document the quantity of any chemical, if used.
- If chemicals are added to the system and the discharge exceeds 10,000 gallons during a 24 hour period, Whole Effluent Toxicity (WET) Test will be performed.
- If ice melt is required for safety reasons, refer (in addition) to SOP procedure.
- Perform and document visual sheen tests.
- If visual sheen tests cannot be performed, collect and document samples for static sheen tests.
- Collect and document samples for pH

1.0 References:

1.0 NPDES GP AKG-28-8100:

1.0.1 Table 3– *Effluent Limitations and Monitoring Requirements for Deck Drainage (D002).*

1.1 Figure 2 – Discharge points (Weston)

1.2 M-I SWACO Multi-Phase Clarifier (MPC) Operations Manual

1.3 Noble Discoverer Best Management Practices Plan, April 2015.

1.4 Noble Discoverer Quality Assurance Project Plan, April 2015.

1.5 Shell Chemical Inventory and Additives Use Management.

1.6 M-I SWACO Standard Operating Procedures: 1006, 2001, 2003, 2008, 3005, 3004, 2012, ENV001.01, TOX045.02, TOX002.05, TOX012.06, TOX014B.02, TOX043.06, Section 2.4.3

1.7 Shell Exploration & Production Company Alaska Venture 2015 Noble Discoverer Waste Management Plan.

2.0 General Requirements:

2.0 The M-I SWACO NPDES Compliance Specialist is responsible for discharge sampling, testing, and reporting to the Shell Environmental Department while operating under NPDES GP AKG-28-8100.

2.1 The Shell Environmental Department is responsible for maintaining the Discharge Monitoring Report (netDMR) and submitting to EPA all discharges sampling, testing and results on a monthly basis.

2.2 Noble is responsible for operating and repairing all equipment associated with this discharge.

3.0 Safety Guidelines:

3.0 Before any operations can take place, all personnel involved in this process must complete the following details if required by operator or contractor:

3.0.1 The Pre-Tour Meeting is when daily activities are discussed.

3.0.2 Job Safety Analysis with all involved parties present.

3.0.3 Review Risk Assessment, if applicable.

3.0.4 Noble Permit to Work.

3.1 Appropriate personal protective equipment must be worn at all times.

4.0 Discharge/Task Description:

4.0 Deck drain is collected in three primary areas on the vessel. The rig floor, main deck starboard and main deck port.

4.1 Deck drainage collected from the rig floor and catwalk is gravity fed into the MPC and sent thru and oil content meter. If fluid reads >15 ppm it will actuate a three-way valve and the effluent will be diverted to an OWS for processing.

4.2 All deck drainage, other than what comes from the rig floor, collected throughout the rig can be fed into two dedicated storage tanks (Port #3 and Starboard #3) or through a bypass line, which goes directly overboard.

4.3 Deck drain discharge stored in the Port #3 and Starboard #3 tanks can be sent through the MPC for processing or discharged overboard after all required samples and tests have been performed.

4.4 As fluid enters into the MPC, the fluid is retained by a unique series of weirs which allow the solids to drop out and free-oil to rise. Strategic placement of other under-over and middle weirs allows for clean water recovery while segregating the dense phase fraction (solids) from the light phase fraction (free-oil).

4.5 The solid fraction will be sent to a storage container, the oil fraction will be sent to a dirty oil storage tank and the remaining water will be discharged to receiving waters.

4.7 A visual or static sheen test will be performed on any fluid processed through the MPC prior to being discharged. The M-I SWACO NPDES Compliance Specialist will record observations or test results on the NPDES Master Spreadsheet.

4.8 After the processed fluids exit the MPC, it passes through an oil content meter. If the oil content measures >15ppm, a three-way valve is actuated and fluid is diverted to an oil /water separator (OWS) for additional processing or sent to the skimmer tank for reprocessing. Effluent <15ppm is diverted to the overboard discharge line, after all required samples and tests have been completed as described in Section 5.0 below.

4.9 In the event of a failed test result, Shell Environmental Department will notify the Shell Drilling Superintendent. All deck drainage will be stored on-board until required repairs to the MPC is completed and a subsequent analytical test documents proper operation.

4.10 A sample port installed on the discharge line, located in the BJ room is used to collect samples of processed effluent from the OWS. A sample port for the effluent sent thru the MPC is also located in the BJ room.

4.8 If fluid is diverted to the OWS, the bridge will be automatically be notified. The bridge will call the M-I SWACO NPDES Compliance Specialist so all samples can be collected.

4.9 In the event of an excessive precipitation, deck drainage flows through a soft-start sensor which reduces the input flow to the MPC. The soft start sensor will overflow to the discharge line located forwarded in front of the oil content meter. Any reading <15 ppm will be discharged overboard and any reading >15 ppm will be sent to the OWS.

4.10 If a visual sheen or a static sheen test fails, the discharge will be isolated and contained or discontinued until resolution is achieved. The Drilling Foreman, the Person in Charge (PIC) and the M-I SWACO NPDES Compliance Specialist will confirm that operations can continue.

4.11 The M-I SWACO NPDES Compliance Specialist will immediately report to Shell Environmental Department at 907-830-7435, of any upset condition.

5.0 Effluent Limitations and Monitoring Requirements - Deck Drainage (D002):

Effluent Parameter	Effluent Limitations	Monitoring Requirements/Sample Frequencey
pH	s.u.	Monthly sample
Free oil	No discharge	Grab sample and visual per discharge event
Total Volume (gal)	-	Monthly estimate
TAqH	µg/L	Grab sample per discharge event
TAH	µg/L	Grab sample per discharge event
WET	TU_c	II.A.13.g.1.(page 22) and II.A.13.n.(page 26) of the NPDES GP

6.0 Clean-up:

6.0 Follow housekeeping procedures.

7.0 Contingency:

7.0 Contaminated fluids can be segregated and held. If excess deck drainage needs additional storage prior to processing and discharge, two tanks, (skimmer and an overflow tank) can be utilized. Contaminated fluids from these tanks will be handled per the Shell Exploration & Production Alaska Venture 2015 Waste Management Plan.

7.1 Heated glycol may be used to deice helicopter main and tail rotors. If used, deck drainage will be handled per the Shell Exploration & Production Alaska Venture 2015 Waste Management Plan.

Revision Log:

Date:	Document History:	Revised/reviewed by:	Location: